

AP Statistics Worksheet

Simple Simulations

Name: _____

For each of the situations below, set up a simulation. Make sure that you **identify the component to be repeated, explain how you will model the outcome, explain how you will simulate the trial, state clearly what the response variable is, run several trials (10 for this worksheet), analyze the response variable, and state your conclusion (in the context of the problem)**. Make sure you show your outcomes for each component, as well as for each trial. For help, see pg. 260-261 and also the “Simulation Step-by-Step” on page 262-263.

1. Suppose a soda company has decided to place free tickets to a concert on the side of certain soda cans. The company has place free tickets on 20% of the cans. The other 70% of cans do not contain the free ticket. If you and your friend want to both get free tickets, how many soda cans, on average, will you need to buy to get the two free tickets. Use the random number list provided below.

77741	50633	58514	08312	85477	80541	68791	04040	98294	42088	84150	31407
42752	35275	57705	63855	92290	33543	36343	54501	73468	63451	20062	50228
86286	24998	61978	51037	30743	91627	08976	10044	06840	16453	87613	74132
88018	46360	71332	69859	00835	07908	13248	97226	45292	74536	60246	29675
94831	99363	38883	93763	02567	29270	49160	89490	15385	90818	64519	16857
59842	57446	11517	75864	09380	82272	90154	39952	90558	12180	00431	35679
29934	73727	15789	63046	47833	40356	62787	95495	23930	65182	41424	59583
05108	95090	51701	55310	17925	56637	67059	82677	62382	23266	40615	41683
38479	48092	92695	05771								

2. Your friend has calculated that, if she wakes up late, she has a 10% chance of being early to school, and 30% chance of being on time, and a 60% chance of being late. If she wakes up late every day of a school week (5 days), what is the probability that she will be late to school each two out of those 5 days? Use the `randInt(` function on your calculator to run your simulation. Make sure you record your components for each trial, as well as the outcomes for each component and trial.